Perspective

Sanitation Systems (/perspective/sanitation-systems-perspective)

Section

Sanitation Systems (/sanitation-systems/sanitation-systems)

Factsheet

System 3: Pour Flush Pit System without Sludge Production

العربية (/ar/sanitation-systems/sanitation-systems/system-3:-pour-flush-pit-system-without-sludge-production)

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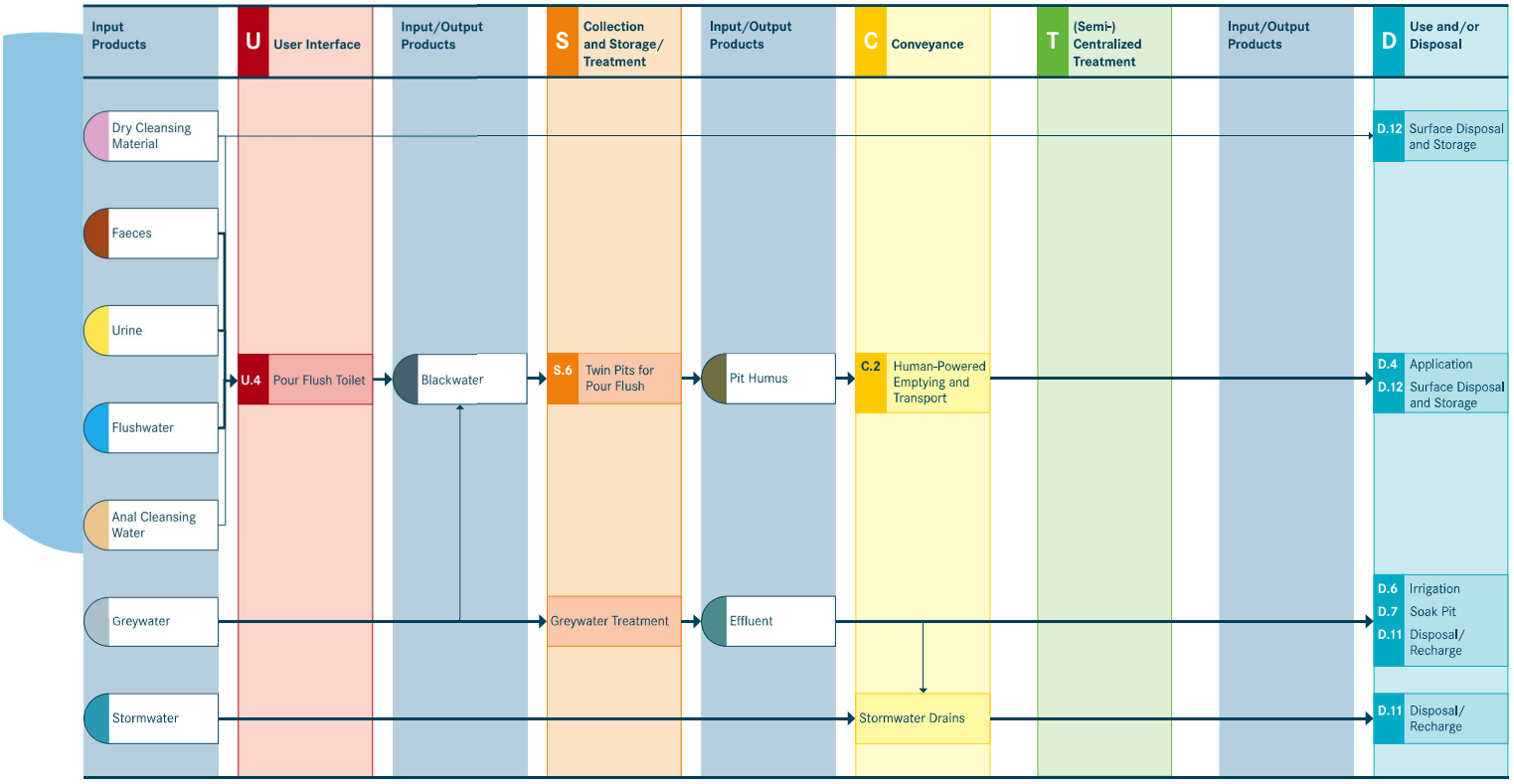
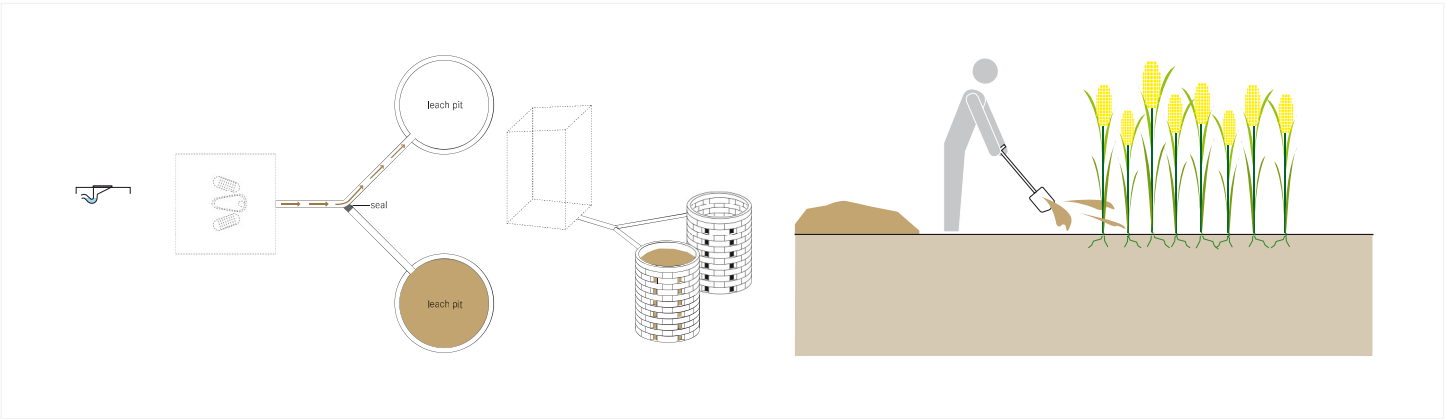
Adapted from

Compendium of Sanitation Systems and Technologies. 2nd Revised Edition (/node/5587)





This is a water-based system utilizing the **Pour flush Toilet (/sanitation-systems/sanitation-technologies/pour-flush-toilet)** (pedestal or squat pan) and **Twin Pits for Pour Flush (/sanitation-systems/sanitation-technologies/twin-pits-for-pour-flush)** to produce a partially digested, humus-like product, that can be used as a soil amendment. If water is not available, please refer to **System 1: Single Pit System (/sanitation-systems/sanitation-systems/system-1:-single-pit-system)**, **System 2: Waterless Pit System without Sludge Production (/sanitation-systems /sanitation-systems/system-2:-waterless-pit-system-without-sludge-production)** and **System 4: Waterless System with Urine Diversion (/humanitarian-crises/camps/sanitation/sanitation-systems/system-4:-waterless-system-with-urine-diversion)**. Inputs to the system can include Faeces, Urine, Flushwater, Anal Cleansing Water, Dry Cleansing Materials and Greywater. The **User Interface (/sanitation-technologies#group-u)** technology for this system is a **Pour flush Toilet (/sanitation-systems/sanitation-technologies/pour-flush-toilet)**. A **Urinal (/sanitation-systems /sanitation-technologies/urinal)** could additionally be used. The Blackwater output from the **User Interface (/sanitation-technologies#group-u)** and possibly Greywater is discharged into **Twin Pits for Pour Flush (/sanitation-systems/sanitation-technologies/twin-pits-for-pour-flush)** for **Collection and Storage/Treatment (/sanitation-technologies#group-s)**. The **Twin Pits for Pour Flush (/sanitation-systems/sanitation-technologies/twin-pits-for-pour-flush)** are lined with a porous material, allowing the liquid to infiltrate into the ground while solids accumulate and degrade at the bottom of the pit. While one pit is filling with Blackwater, the other pit remains out of service. When the first pit is full, it is covered and temporarily taken out of service. It should take a minimum of two years to fill a pit. When the second pit is full, the first pit is re-opened and emptied.

After a resting time of at least two years, the content is transformed into Pit Humus (sometimes also called EcoHumus), a nutrient-rich, hygienically improved, humic material which is safe to excavate. Since it has undergone significant dewatering and degradation, Pit Humus is much more hygienic than raw, undigested Sludge. Therefore, it does not require further treatment in a **(Semi-) Centralized Treatment facility (/sanitation-technologies#group-t)**. The Pit Humus is removed using a **Human-powered Emptying and Transport (/sanitation-systems/sanitation-technologies /human-powered-emptying-and-transport)** technology and transported for **Use and/or Disposal**

(/sanitation-technologies#group-d). The emptied pit is then put back into operation. This cycle can be indefinitely repeated.

Pit Humus has good soil conditioning properties and can be applied in agriculture (**Application of Pit Humus and Compost (/sanitation-systems/sanitation-technologies/application-of-pit-humus-and-compost)**). If there are concerns about the quality of the Pit Humus, it can be further composted in a dedicated composting facility before it is used. If there is no use for the product, it can be temporarily stored or permanently disposed of (**Surface Disposal and Storage (/sanitation-systems/sanitation-technologies/surface-disposal-and-storage)**).

Considerations

This system is suited to rural and peri-urban areas with appropriate soil that can continually and adequately absorb the leachate. It is not appropriate for areas with clayey or densely packed soil. As leachate from **Twin Pits for Pour Flush (/sanitation-systems/sanitation-technologies/twin-pits-for-pour-flush)** directly infiltrates the surrounding soil, this system should only be installed where there is a low groundwater table that is not at risk of being contaminated from the pits. If there is frequent flooding or the groundwater table is too high and enters the **Twin Pits for Pour Flush (/sanitation-systems/sanitation-technologies/twin-pits-for-pour-flush)**, the dewatering process, particularly, in the resting pit, will be hindered. The material that is removed should be in a safe, useable form, although proper personal protection should be used during removal, transport and use.

Greywater can be co-managed along with the Blackwater in the **Twin Pits for Pour Flush (/sanitation-systems/sanitation-technologies/twin-pits-for-pour-flush)**, especially if the Greywater quantities are relatively small, and no other management system is in place to control it. However, large quantities of Flushwater and/or Greywater may result in excessive leaching from the pit and possibly groundwater contamination.

This system is well-suited for anal cleansing with water. If possible, Dry Cleansing Materials should be collected and disposed of separately (**Surface Disposal and Storage (/sanitation-systems/sanitation-technologies/surface-disposal-and-storage)**) because they may clog the pipe fittings and prevent the liquid inside the pit from infiltrating into the soil.

Guidelines for the safe use of wasterwater excreta and greywater. Volume IV. Excreta and Greywater Use in Agriculture (/node/1133) of Excreta have been published by the World Health Organization (WHO) and are referenced on the relevant technology information sheets.

Library References

Compendium of Sanitation Systems and Technologies. 2nd Revised Edition

This compendium gives a systematic overview on different sanitation systems and technologies and describes a wide range of available low-cost sanitation technologies.

TILLEY, E. ULRICH, L. LUETHI, C. REYMOND, P. ZURBRUEGG, C. (2014): Compendium of Sanitation Systems and Technologies. 2nd Revised Edition. Duebendorf, Switzerland: Swiss Federal Institute of Aquatic Science and Technology (Eawag) **URL (http://www.eawag.ch/forschung/sandec/publikationen/compendium_e/index_EN)** [Accessed: 28.07.2014] **PDF (/sites/default/files/reference_attachments/TILLEY%20et%20al%202014%20Compendium%20of%20Sanitation%20Systems%20and%20Te**
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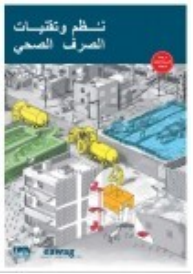
Further Readings

Compendium of Sanitation Systems and Technologies (Arabic)



This is the Arabic version of the Compendium of Sanitation Systems and Technologies. The Compendium gives a systematic overview on different sanitation systems and technologies and describes a wide range of available .low-cost sanitation technologies

TILLEY, E. ULRICH, L. LUETHI, C. REYMOND, P. SCHERTENLEIB, R. ZURBRUEGG, C. (2014): Compendium of Sanitation Systems and Technologies (Arabic). 2nd Revised Edition. Duebendorf, Switzerland: Swiss Federal Institute of Aquatic Science and Technology (Eawag) **PDF (/sites/default/files/reference_attachments/TILLEY%20et%20al%202014%20Arabic%20Compendium%20of%20Sanitation%20Systems.pdf)**

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